```
=> FILE REG
FILE 'REGISTRY' ENTERED AT 11:55:37 ON 21 JUL 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2006 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES:   20 JUL 2006  HIGHEST RN 894992-91-7
DICTIONARY FILE UPDATES:  20 JUL 2006  HIGHEST RN 894992-91-7

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH January 6, 2006

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document.  For information
on property searching in REGISTRY, refer to:

http://www.cas.org/ONLINE/UG/regprops.html

=> FILE HCAPLU
FILE 'HCAPLUS' ENTERED AT 11:55:41 ON 21 JUL 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2006 AMERICAN CHEMICAL SOCIETY (ACS)
```



```
FILE COVERS 1907 - 21 Jul 2006  VOL 145 ISS 5
FILE LAST UPDATED: 20 Jul 2006  (20060720/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

 This file contains CAS Registry Numbers for easy and accurate
 substance identification.

=> D QUE
L2            9 SEA FILE=REGISTRY ABB=ON  (107-21-1/BI OR 7440-31-5/BI OR
                7440-36-0/BI OR 7440-74-6/BI OR 7446-14-2/BI OR 7727-43-7/BI
                OR 9002-89-5/BI OR 9003-01-4/BI OR 9005-53-2/BI)
L3            2 SEA FILE=REGISTRY ABB=ON  L2 AND S/ELS
L4            1 SEA FILE=REGISTRY ABB=ON  "SULFURIC ACID"/CN
L5          789 SEA FILE=REGISTRY ABB=ON  LIGNIN
L6            3 SEA FILE=REGISTRY ABB=ON  L2 AND PMS/CI
L7            2 SEA FILE=REGISTRY ABB=ON  L6 NOT LIGNIN
```

```
L8        437145 SEA FILE=HCAPLUS ABB=ON  L3 OR L4 OR H2SO4 OR SULFURIC ACID
L9          4287 SEA FILE=HCAPLUS ABB=ON  L8 AND (LIGNIN? OR L5)
L10      2554281 SEA FILE=HCAPLUS ABB=ON  L7 OR  ?POLYMER? OR ?SILOXANE? OR PVA
                 OR POLYVINYL OR ?ACRYL?
L11          899 SEA FILE=HCAPLUS ABB=ON  L9 AND L10
L12           51 SEA FILE=HCAPLUS ABB=ON  L11 AND BATTER?
L13           46 SEA FILE=HCAPLUS ABB=ON  L12 AND ELECTROCHEMICAL/SC
L14           16 SEA FILE=HCAPLUS ABB=ON  L13 AND ELECTROLYTE?
L15           39 SEA FILE=HCAPLUS ABB=ON  L11 AND ELECTROLYTE?
L16           17 SEA FILE=HCAPLUS ABB=ON  L15 AND ELECTROCHEMICAL/SC
L17           17 SEA FILE=HCAPLUS ABB=ON  L14 OR L16
L18           17 SEA FILE=HCAPLUS ABB=ON  L11 AND ELECTROLYTE? AND ELECTROCHEMIC
                 AL?/SC,SX
L19           17 SEA FILE=HCAPLUS ABB=ON  L17 OR L18
```

=> D L19 BIB ABS IND HITSTR 1-17

L19 ANSWER 1 OF 17 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2006:633171 HCAPLUS
DN 145:66457
TI Lead acid **battery** and its charging method
IN Ozawa, Akiya; Yan, Li; Mase, Shunzo
PA Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2006173075	A2	20060629	JP 2004-382656	20041216
PRAI	JP 2004-382656		20041216		

AB The **battery** is equipped with an **electrolyte** solution containing **H2SO4** and an organic **polymer** increasing H overvoltage at a Pb electrode, where the **electrolyte** solution satisfies sp. gr. 1.20-1.27 and liquid amount 6-7 mL/Ah while being charged. The **battery** is charged by satisfying the above condition. The **battery** provides high durability in long time use and the method regenerates the **battery** after deterioration.
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST lead acid **battery electrolyte** org **polymer** additive charging method
IT **Battery electrolytes**
(charging of lead acid **battery** with **electrolyte** solution containing organic **polymer**)
IT Secondary **batteries**
(lead-acid; charging of lead acid **battery** with **electrolyte** solution containing organic **polymer**)
IT **9002-89-5**, **Polyvinyl** alcohol **9003-01-4D**, **Polyacrylic** acid, salts **9004-32-4**, Carboxymethyl cellulose
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(charging of lead acid **battery** with **electrolyte** solution containing organic **polymer**)
IT **7664-93-9**, **Sulfuric acid**, uses
RL: DEV (Device component use); USES (Uses)
(**electrolyte** solution; charging of lead acid **battery**

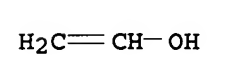
with **electrolyte** solution containing organic **polymer**)

IT **9002-89-5**, **Polyvinyl** alcohol **9003-01-4D**, **Polyacrylic** acid, salts **9004-32-4**, Carboxymethyl cellulose
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(charging of lead acid **battery** with **electrolyte** solution containing organic **polymer**)

RN 9002-89-5 HCAPLUS
CN Ethenol, homopolymer (9CI) (CA INDEX NAME)

CM 1

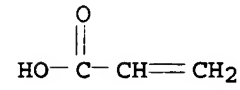
CRN 557-75-5
CMF C2 H4 O



RN 9003-01-4 HCAPLUS
CN 2-Propenoic acid, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-10-7
CMF C3 H4 O2



RN 9004-32-4 HCAPLUS
CN Cellulose, carboxymethyl ether, sodium salt (8CI, 9CI) (CA INDEX NAME)

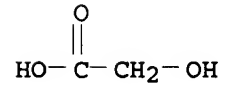
CM 1

CRN 9004-34-6
CMF Unspecified
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

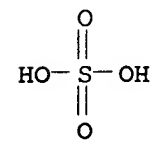
CM 2

CRN 79-14-1
CMF C2 H4 O3



IT **7664-93-9**, **Sulfuric acid**, uses
RL: DEV (Device component use); USES (Uses)
(**electrolyte** solution; charging of lead acid **battery** with **electrolyte** solution containing organic **polymer**)

RN 7664-93-9 HCAPLUS
CN Sulfuric acid (8CI, 9CI) (CA INDEX NAME)

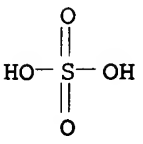


L19 ANSWER 2 OF 17 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2006:578761 HCAPLUS
DN 145:48581
TI Control valve-type secondary lead-acid **battery**
IN Shibahara, Toshio
PA Shin-Kobe Electric Machinery Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2006155901	A2	20060615	JP 2004-339897	20041125
PRAI	JP 2004-339897		20041125		

AB The **battery**, having a cathode and an anode which are insulated via a thin glass fiber based separator and prepared by **battery** jar chemical forming, has MgSO4 added to an **electrolyte** solution and ≥1 salts, selected from Mg lignosulfonates, Ca lignosulfonates, and Ba lignosulfonates, is added to an active mass of the anode.
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST secondary lead acid **battery electrolyte** additive Mg sulfate; **battery** anode additive calcium magnesium barium lignosulfonates
IT **Battery** anodes
Battery electrolytes
(**electrolyte** solns. containing magnesium sulfates and anodes containing alkaline metal lignosulfonates for secondary lead-acid **batteries**)
IT Glass fibers, uses
RL: DEV (Device component use); USES (Uses)
(**electrolyte** solns. containing magnesium sulfates and anodes containing alkaline metal lignosulfonates for secondary lead-acid **batteries**)
IT **Fluoropolymers**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**electrolyte** solns. containing magnesium sulfates and anodes containing alkaline metal lignosulfonates for secondary lead-acid **batteries**)
IT Polyesters, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**electrolyte** solns. containing magnesium sulfates and anodes containing alkaline metal lignosulfonates for secondary lead-acid **batteries**)
IT Secondary **batteries**
(lead-acid; **electrolyte** solns. containing magnesium sulfates and anodes containing alkaline metal lignosulfonates for secondary lead-acid

batteries)
IT 7439-92-1, Lead, uses **7664-93-9**, **Sulfuric acid**
, uses
RL: DEV (Device component use); USES (Uses)
(**electrolyte** solns. containing magnesium sulfates and anodes containing alkaline metal lignosulfonates for secondary lead-acid **batteries**)
IT 7487-88-9, Magnesium sulfate, uses **8061-52-7**, Calcium lignosulfonate **8061-54-9**, Magnesium lignosulfonate 9002-84-0, PTFE 9003-07-0, Polypropylene 25038-59-9, uses 39278-27-8, Barium lignosulfonate
RL: MOA (Modifier or additive use); USES (Uses)
(**electrolyte** solns. containing magnesium sulfates and anodes containing alkaline metal lignosulfonates for secondary lead-acid **batteries**)
IT **7664-93-9**, **Sulfuric acid**, uses
RL: DEV (Device component use); USES (Uses)
(**electrolyte** solns. containing magnesium sulfates and anodes containing alkaline metal lignosulfonates for secondary lead-acid **batteries**)
RN 7664-93-9 HCAPLUS
CN Sulfuric acid (8CI, 9CI) (CA INDEX NAME)



IT **8061-52-7**, Calcium lignosulfonate **8061-54-9**, Magnesium lignosulfonate
RL: MOA (Modifier or additive use); USES (Uses)
(**electrolyte** solns. containing magnesium sulfates and anodes containing alkaline metal lignosulfonates for secondary lead-acid **batteries**)
RN 8061-52-7 HCAPLUS
CN Lignosulfonic acid, calcium salt (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 8061-54-9 HCAPLUS
CN Lignosulfonic acid, magnesium salt (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L19 ANSWER 3 OF 17 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2006:12150 HCAPLUS
DN 144:91160
TI Compact lightweight power supply circuits equipped with bipolar back-up **batteries**
IN Miyahara, Tomoko; Shimotani, Hiroshi; Kishi, Kentaro; Anazawa, Kazunori; Morikawa, Hisao; Hasegawa, Shinji
PA Fuji Xerox Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 18 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1
PATENT NO. KIND DATE APPLICATION NO. DATE

PI	JP 2006004818	A2	20060105	JP 2004-181158	20040618
PRAI	JP 2004-181158		20040618		

AB The circuits comprise main power supplies (A), memory devices, monitors for A, and back-up **batteries**. Power generation parts of the **batteries** (enclosed in cases) have electrode-containing acidic and basic media (e.g., solns., ion exchangers, ion conductor gels) arranged in contact with (or in close to) each other, one or both of which contain reactive substances (e.g., H2O2). The monitors may contain switches, for supplying power of the **batteries** to the memory devices, when power from A is decreased to prescribed value.

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 74

ST compact power supply circuit back up **battery**; memory back up bipolar **battery** hydrogen peroxide; acidic basic ion exchanger conductor **battery**

IT Primary **batteries**
(back-up, bipolar; compact lightwt. power supply circuits equipped with bipolar back-up **batteries**)

IT Ceramics
(**battery** cases; compact lightwt. power supply circuits equipped with bipolar back-up **batteries**)

IT **Polymers**, uses
RL: DEV (Device component use); USES (Uses)
(**battery** cases; compact lightwt. power supply circuits equipped with bipolar back-up **batteries**)

IT Control apparatus
Electric circuits
Memory devices
(compact lightwt. power supply circuits equipped with bipolar back-up **batteries**)

IT Ion exchangers
(**electrolytes**; compact lightwt. power supply circuits equipped with bipolar back-up **batteries**)

IT Acids, uses
Alkali metal salts
Polyphosphoric acids
RL: DEV (Device component use); USES (Uses)
(**electrolytes**; compact lightwt. power supply circuits equipped with bipolar back-up **batteries**)

IT Ionic conductors
(gels, **electrolytes**; compact lightwt. power supply circuits equipped with bipolar back-up **batteries**)

IT **Fluoropolymers**, uses
RL: DEV (Device component use); USES (Uses)
(ion exchangers, **electrolytes**; compact lightwt. power supply circuits equipped with bipolar back-up **batteries**)

IT Electric generators
(power supplies; compact lightwt. power supply circuits equipped with bipolar back-up **batteries**)

IT Synthetic **polymeric** fibers, uses
RL: DEV (Device component use); USES (Uses)
(styrene, filter paper, ion exchangers, **electrolytes**; compact lightwt. power supply circuits equipped with bipolar back-up **batteries**)

IT 7722-84-1, Hydrogen peroxide, uses
RL: DEV (Device component use); USES (Uses)
(compact lightwt. power supply circuits equipped with bipolar back-up **batteries**)

IT 9002-18-0, Agar **9003-01-4**, Poly(**acrylic** acid)
RL: DEV (Device component use); USES (Uses)
(crosslinked, gels, **electrolyte** retainers; compact lightwt. power supply circuits equipped with bipolar back-up **batteries**)

IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 7440-06-4, Platinum, uses 7440-22-4, Silver, uses 7440-32-6, Titanium, uses 7440-44-0, Carbon, uses 7440-57-5, Gold, uses 11129-89-8, Platinum oxide 12597-68-1, Stainless steel, uses
RL: DEV (Device component use); USES (Uses)
(electrodes; compact lightwt. power supply circuits equipped with bipolar back-up **batteries**)

IT 64-19-7, Acetic acid, uses 69-72-7, Salicylic acid, uses 75-59-2, Tetramethylammonium hydroxide 75-75-2, Methanesulfonic acid 76-05-1, Trifluoroacetic acid, uses 77-92-9, Citric acid, uses 77-98-5, Tetraethylammonium hydroxide 87-69-4, Tartaric acid, uses 88-89-1, Picric acid 88-99-3, Phthalic acid, uses 110-16-7, Maleic acid, uses 110-17-8, Fumaric acid, uses 141-82-2, Malonic acid, uses 144-55-8, Sodium hydrogencarbonate, uses 144-62-7, Oxalic acid, uses 298-14-6 497-19-8, Sodium carbonate, uses 584-08-7, Potassium carbonate 1305-62-0, Calcium hydroxide, uses 1309-42-8, Magnesium hydroxide 1310-58-3, Potassium hydroxide, uses 1310-65-2, Lithium hydroxide 1310-73-2, Sodium hydroxide, uses 1312-76-1, Potassium silicate 1333-73-9 1336-21-6, Ammonium hydroxide 1344-09-8, Sodium silicate 1493-13-6, Trifluoromethanesulfonic acid 2052-49-5, Tetrabutylammonium hydroxide 4499-86-9, Tetrapropylammonium hydroxide 7601-90-3, Perchloric acid, uses 7647-01-0, Hydrochloric acid, uses 7664-38-2, Orthophosphoric acid, uses **7664-93-9**, **Sulfuric acid**, uses 7697-37-2, Nitric acid, uses 7758-29-4, Sodium tripolyphosphate 10034-85-2, Hydroiodic acid 10035-10-6, Hydrobromic acid, uses 11137-59-0, Potassium aluminate 11138-49-1, Sodium aluminate 12712-38-8, Potassium borate 13444-71-8, Periodic acid 13845-36-8, Potassium tripolyphosphate 16872-11-0, Tetrafluoroboric acid 16940-81-1 16941-12-1, Hexachloroplatinic acid 16961-83-4, Hexafluorosilicic acid 17068-85-8, Hexafluoroarsenic acid 17194-00-2, Barium hydroxide
RL: DEV (Device component use); USES (Uses)
(**electrolytes**; compact lightwt. power supply circuits equipped with bipolar back-up **batteries**)

IT 7631-86-9, Silica, uses 9003-04-7, Poly(**acrylic** acid) sodium salt **9004-32-4**, Carboxymethyl cellulose
RL: DEV (Device component use); USES (Uses)
(gels, **electrolyte** retainers; compact lightwt. power supply circuits equipped with bipolar back-up **batteries**)

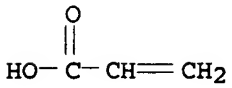
IT 1321-74-0D, Vinyl styrene, **polymers**
RL: DEV (Device component use); USES (Uses)
(ion exchangers, **electrolytes**; compact lightwt. power supply circuits equipped with bipolar back-up **batteries**)

IT **9003-01-4**, Poly(**acrylic** acid)
RL: DEV (Device component use); USES (Uses)
(crosslinked, gels, **electrolyte** retainers; compact lightwt. power supply circuits equipped with bipolar back-up **batteries**)

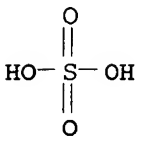
RN 9003-01-4 HCAPLUS
CN 2-Propenoic acid, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-10-7
CMF C3 H4 O2



IT **7664-93-9, Sulfuric acid**, uses
RL: DEV (Device component use); USES (Uses)
(**electrolytes**; compact lightwt. power supply circuits equipped with bipolar back-up **batteries**)
RN 7664-93-9 HCAPLUS
CN Sulfuric acid (8CI, 9CI) (CA INDEX NAME)



IT **9004-32-4**, Carboxymethyl cellulose
RL: DEV (Device component use); USES (Uses)
(gels, **electrolyte** retainers; compact lightwt. power supply circuits equipped with bipolar back-up **batteries**)
RN 9004-32-4 HCAPLUS
CN Cellulose, carboxymethyl ether, sodium salt (8CI, 9CI) (CA INDEX NAME)

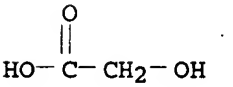
CM 1

CRN 9004-34-6
CMF Unspecified
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 79-14-1
CMF C2 H4 O3



L19 ANSWER 4 OF 17 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2006:10827 HCAPLUS
DN 144:72319
TI Flexible secondary **batteries** having means for reclamation of **electrolyte** components
IN Morikawa, Hisao; Hasegawa, Shinji; Kishi, Kentaro; Shimotani, Hiroshi; Anazawa, Kazunori; Miyahara, Tomoko
PA Fuji Xerox Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 22 pp.
CODEN: JKXXAF
DT Patent

LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2006004795	A2	20060105	JP 2004-180675	20040618
PRAI	JP 2004-180675		20040618		

AB The **batteries** have power-generating components equipped with closely arranged acidic media and basic media sep. holding either the 1st or the 2nd electrodes and containing reactive substances (A; e.g., H_2O_2), where the whole components have flexibility and include charge components equipped with A-reclaiming means (e.g., elec. dialyzers). The **batteries** exhibit good impact resistance and require no strict packaging.

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

ST flexible secondary **battery electrolyte** reclaimable; hydrogen peroxide reclaiming dialyzer flexible secondary **battery**

IT Secondary **batteries**
(bipolar; flexible secondary **batteries** having means for reclamation of **electrolyte** components)

IT Dialyzers
(elec., bipolar; flexible secondary **batteries** having means for reclamation of **electrolyte** components)

IT Hydrocarbons, uses
RL: DEV (Device component use); USES (Uses)
(fluoro, **polymers**, ion exchangers; flexible secondary **batteries** having means for reclamation of **electrolyte** components)

IT Silica gel, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(gelling agents; flexible secondary **batteries** having means for reclamation of **electrolyte** components)

IT Sulfonic acids, uses
RL: DEV (Device component use); USES (Uses)
(metasulfonic acids; flexible secondary **batteries** having means for reclamation of **electrolyte** components)

IT Metals, uses
RL: DEV (Device component use); USES (Uses)
(packaging film components; flexible secondary **batteries** having means for reclamation of **electrolyte** components)

IT 7440-44-0, Carbon, uses
RL: DEV (Device component use); USES (Uses)
(amorphous, **battery** electrodes; flexible secondary **batteries** having means for reclamation of **electrolyte** components)

IT 79-10-7D, **Acrylic** acid, **polymers**
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(crosslinked, gelling agents; flexible secondary **batteries** having means for reclamation of **electrolyte** components)

IT 100-42-5D, Styrene, **polymers**
RL: DEV (Device component use); USES (Uses)
(fiber, ion exchangers; flexible secondary **batteries** having means for reclamation of **electrolyte** components)

IT 64-19-7, Acetic acid, uses 69-72-7, Salicylic acid, uses 75-59-2, Tetramethylammonium hydroxide 77-92-9, Citric acid, uses 77-98-5, Tetraethylammonium hydroxide 87-69-4, Tartaric acid, uses 88-99-3, Phthalic acid, uses 110-16-7, Maleic acid, uses 110-17-8, Fumaric acid, uses 141-82-2, Malonic acid, uses 144-55-8, Sodium hydrogen

carbonate, uses 144-62-7, Oxalic acid, uses 298-14-6 497-19-8, Sodium carbonate, uses 584-08-7, Potassium carbonate 1302-42-7, Sodium aluminate 1305-62-0, Calcium hydroxide, uses 1309-42-8, Magnesium hydroxide 1310-58-3, Potassium hydroxide, uses 1310-73-2, Sodium hydroxide, uses 1312-76-1, Potassium silicate 1330-43-4, Sodium borate 1332-77-0, Potassium borate 1336-21-6, Ammonium hydroxide 1344-09-8, Sodium silicate 2052-49-5, Tetrabutylammonium hydroxide 4499-86-9, Tetrapropylammonium hydroxide 7601-90-3, Perchloric acid, uses 7647-01-0, Hydrochloric acid, uses 7664-38-2, Orthophosphoric acid, uses **7664-93-9**, **Sulfuric acid**, uses 7722-84-1, Hydrogen peroxide, uses 7758-29-4, Sodium tripolyphosphate 10034-85-2, Hydroiodic acid 10035-10-6, Hydrobromic acid, uses 11137-59-0, Potassium aluminate 13444-71-8, Periodic acid 13845-36-8, Potassium tripolyphosphate 16872-11-0, Tetrafluoroboric acid 16940-81-1, Hexafluorophosphoric acid 16961-83-4, Hexafluorosilicic acid 17194-00-2, Barium hydroxide
RL: DEV (Device component use); USES (Uses)
(flexible secondary **batteries** having means for reclamation of **electrolyte** components)

IT 9002-18-0, Agar **9004-32-4**, Sodium carboxymethylcellulose
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(gelling agents; flexible secondary **batteries** having means for reclamation of **electrolyte** components)

IT 1321-74-0D, Vinylstyrene, **polymers**
RL: DEV (Device component use); USES (Uses)
(ion exchangers; flexible secondary **batteries** having means for reclamation of **electrolyte** components)

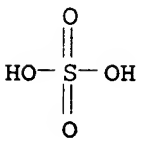
IT 7440-06-4, Platinum, uses
RL: DEV (Device component use); USES (Uses)
(mesh, electrodes; flexible secondary **batteries** having means for reclamation of **electrolyte** components)

IT 9002-88-4, Polyethylene
RL: DEV (Device component use); USES (Uses)
(packaging films; flexible secondary **batteries** having means for reclamation of **electrolyte** components)

IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 7440-32-6, Titanium, uses 12597-68-1, Stainless steel, uses
RL: DEV (Device component use); USES (Uses)
(surface-passivated, electrodes; flexible secondary **batteries** having means for reclamation of **electrolyte** components)

IT **7664-93-9**, **Sulfuric acid**, uses
RL: DEV (Device component use); USES (Uses)
(flexible secondary **batteries** having means for reclamation of **electrolyte** components)

RN 7664-93-9 HCAPLUS
CN Sulfuric acid (8CI, 9CI) (CA INDEX NAME)



IT **9004-32-4**, Sodium carboxymethylcellulose
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(gelling agents; flexible secondary **batteries** having means

for reclamation of **electrolyte** components)
RN 9004-32-4 HCAPLUS
CN Cellulose, carboxymethyl ether, sodium salt (8CI, 9CI) (CA INDEX NAME)

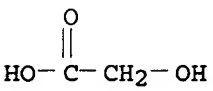
CM 1

CRN 9004-34-6
CMF Unspecified
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 79-14-1
CMF C2 H4 O3



L19 ANSWER 5 OF 17 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2005:1334537 HCAPLUS
DN 144:72245
TI Lead acid **battery**
IN Kozawa, Shiny; Yoshio, Masayuki; Okayasu, Tatsuya
PA Mase, Shunzo, Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

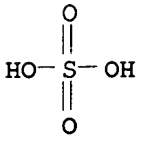
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2005353559	A2	20051222	JP 2004-202491	20040611
PRAI JP 2004-202491		20040611		

AB The **battery** has a container having gaps, for commuting of a dilute **H2SO4** based **electrolyte** or a **H2SO4** based **electrolyte** containing an organic **polymer**, capable of raising the H overpotential at the anode during overcharging, and is filled with an H overpotential raising organic **polymer** soluble in the **electrolyte.**
IC ICM H01M010-12
ICS H01M004-14; H01M004-62; H01M010-08
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST lead acid **battery** hydrogen overpotential raising **polymer**
IT Secondary **batteries**
(lead acid **batteries** containing **electrolyte** soluble hydrogen overpotential raising organic **polymers**)
IT **7664-93-9**, **Sulfuric acid**, uses
RL: DEV (Device component use); USES (Uses)
(lead acid **batteries** containing **electrolyte** soluble hydrogen overpotential raising organic **polymers**)
IT **9002-89-5**, Poly(vinyl alcohol) **9003-01-4**, Poly(**acrylic** acid) **9003-01-4D**, Poly(**acrylic** acid), esters **9005-53-2**, **Lignin**, uses

RL: MOA (Modifier or additive use); USES (Uses)
(lead acid **batteries** containing **electrolyte** soluble hydrogen overpotential raising organic **polymers**)

IT **7664-93-9**, **Sulfuric acid**, uses
RL: DEV (Device component use); USES (Uses)
(lead acid **batteries** containing **electrolyte** soluble hydrogen overpotential raising organic **polymers**)

RN 7664-93-9 HCAPLUS
CN Sulfuric acid (8CI, 9CI) (CA INDEX NAME)

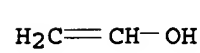


IT **9002-89-5**, Poly(vinyl alcohol) **9003-01-4**, Poly(**acrylic** acid) **9003-01-4D**, Poly(**acrylic** acid), esters **9005-53-2**, **Lignin**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(lead acid **batteries** containing **electrolyte** soluble hydrogen overpotential raising organic **polymers**)

RN 9002-89-5 HCAPLUS
CN Ethenol, homopolymer (9CI) (CA INDEX NAME)

CM 1

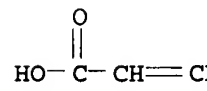
CRN 557-75-5
CMF C2 H4 O



RN 9003-01-4 HCAPLUS
CN 2-Propenoic acid, homopolymer (9CI) (CA INDEX NAME)

CM 1

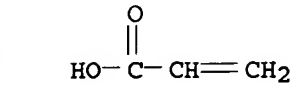
CRN 79-10-7
CMF C3 H4 O2



RN 9003-01-4 HCAPLUS
CN 2-Propenoic acid, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-10-7
CMF C3 H4 O2



RN 9005-53-2 HCAPLUS
CN Lignin (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L19 ANSWER 6 OF 17 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2005:1261717 HCAPLUS
DN 143:480463
TI Flexible **batteries** and stable power generation using them
IN Shimotani, Hiroshi; Kishi, Kentaro; Miyahara, Tomoko; Hasegawa, Masashi
PA Fuji Xerox Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 18 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2005332591	A2	20051202	JP 2004-147249	20040518
PRAI JP 2004-147249		20040518		

AB The **batteries** comprise (A) acid media containing cathodes, (B) base media containing anodes, and (C) active mass in at least either of the media, wherein those 2 media are close to or in contact with each other. The media may be acidic and basic ion exchangers of vinylstyrene **polymers**, **fluoropolymers**, etc.
IC ICM H01M006-00
ICS H01M002-02; H01M014-00
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST **battery** flexibility acid base medium **electrolyte**
IT Gels
Ion exchangers
(acid and base medium; flexible **batteries** and stable power generation using them)
IT Polyphosphoric acids
RL: DEV (Device component use); USES (Uses)
(acid medium; flexible **batteries** and stable power generation using them)
IT **Battery electrolytes**
Primary **batteries**
(flexible **batteries** and stable power generation using them)
IT Polyesters, uses
RL: DEV (Device component use); USES (Uses)
(flexible **batteries** and stable power generation using them)
IT **Fluoropolymers**, uses
RL: DEV (Device component use); USES (Uses)
(ion exchanger, acid and base medium; flexible **batteries** and stable power generation using them)
IT Polyphosphoric acids
RL: DEV (Device component use); USES (Uses)
(potassium salts, base medium; flexible **batteries** and stable power generation using them)
IT 64-19-7, Acetic acid, uses 69-72-7, Salicylic acid, uses 75-75-2, Methanesulfonic acid 76-05-1, Trifluoroacetic acid, uses 77-92-9,

Citric acid, uses 87-69-4, Tartaric acid, uses 88-89-1, Picric acid 88-99-3, Phthalic acid, uses 110-16-7, Maleic acid, uses 110-17-8, Fumaric acid, uses 141-82-2, Malonic acid, uses 144-62-7, Oxalic acid, uses 1493-13-6, Trifluoromethanesulfonic acid 7601-90-3, Perchloric acid, uses 7647-01-0, Hydrochloric acid, uses 7664-38-2, Orthophosphoric acid, uses **7664-93-9**, **Sulfuric acid**, uses 7697-37-2, Nitric acid, uses 10034-85-2, Hydroiodic acid 10035-10-6, Hydrobromic acid, uses 13444-71-8, Periodic acid 16872-11-0, Tetrafluoroboric acid 16940-81-1, Hexafluorophosphoric acid 16941-12-1, Hexachloroplatinic acid 16961-83-4, Hexafluoro silicic acid 17068-85-8, Hexafluoroarsenic acid
RL: DEV (Device component use); USES (Uses)
(acid medium; flexible **batteries** and stable power generation using them)

IT 7722-84-1, Hydrogen peroxide, uses
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(active mass; flexible **batteries** and stable power generation using them)

IT 1344-09-8, Sodium silicate
RL: DEV (Device component use); USES (Uses)
(base medium, gelation of acid and base medium with; flexible **batteries** and stable power generation using them)

IT 75-59-2, Tetramethylammonium hydroxide 77-98-5, Tetraethylammonium hydroxide 144-55-8, Sodium hydrogencarbonate, uses 298-14-6 497-19-8, Sodium carbonate, uses 584-08-7, Potassium carbonate 1305-62-0, Calcium hydroxide, uses 1309-42-8, Magnesium hydroxide 1310-58-3, Potassium hydroxide, uses 1310-65-2, Lithium hydroxide 1310-73-2, Sodium hydroxide, uses 1312-76-1, Potassium silicate 1330-43-4, Sodium borate 1336-21-6, Ammonium hydroxide 2052-49-5, Tetrabutylammonium hydroxide 4499-86-9, Tetrapropylammonium hydroxide 7758-29-4, Sodium tripolyphosphate 11137-59-0, Potassium aluminate 11138-49-1, Sodium aluminate 12712-38-8, Potassium borate 17194-00-2, Barium hydroxide
RL: DEV (Device component use); USES (Uses)
(base medium; flexible **batteries** and stable power generation using them)

IT 11129-89-8, Platinum oxide
RL: DEV (Device component use); USES (Uses)
(coating Pt with, outer frame, electrode; flexible **batteries** and stable power generation using them)

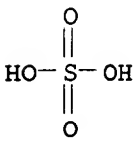
IT 9003-04-7, **Acrylic** acid **homopolymer** sodium salt
RL: DEV (Device component use); USES (Uses)
(crosslinked, gelation of acid and base medium with; flexible **batteries** and stable power generation using them)

IT 7631-86-9, Silica, uses 9002-18-0, Agar **9004-32-4**, Carboxymethyl cellulose
RL: DEV (Device component use); USES (Uses)
(gelation of acid and base medium with; flexible **batteries** and stable power generation using them)

IT 7440-44-0, Glassy carbon, uses
RL: DEV (Device component use); USES (Uses)
(glassy, outer frame, electrode; flexible **batteries** and stable power generation using them)

IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 7440-06-4, Platinum black, uses 7440-22-4, Silver, uses 7440-32-6, Titanium, uses 7440-57-5, Gold, uses 12597-68-1, Stainless steel, uses
RL: DEV (Device component use); USES (Uses)
(outer frame, electrode; flexible **batteries** and stable power generation using them)

IT 25038-59-9, PET **polymer**, uses
RL: DEV (Device component use); USES (Uses)
(outer frame; flexible **batteries** and stable power generation using them)
IT **7664-93-9, Sulfuric acid**, uses
RL: DEV (Device component use); USES (Uses)
(acid medium; flexible **batteries** and stable power generation using them)
RN 7664-93-9 HCAPLUS
CN Sulfuric acid (8CI, 9CI) (CA INDEX NAME)



IT **9004-32-4**, Carboxymethyl cellulose
RL: DEV (Device component use); USES (Uses)
(gelation of acid and base medium with; flexible **batteries** and stable power generation using them)
RN 9004-32-4 HCAPLUS
CN Cellulose, carboxymethyl ether, sodium salt (8CI, 9CI) (CA INDEX NAME)

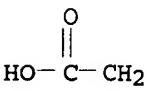
CM 1

CRN 9004-34-6
CMF Unspecified
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 79-14-1
CMF C2 H4 O3



L19 ANSWER 7 OF 17 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:964668 HCAPLUS
DN 141:398259
TI Direct methanol fuel cell electrode catalyst
IN Fan, Qinbai
PA USA
SO U.S. Pat. Appl. Publ., 11 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2004224218	A1	20041111	US 2003-642852	20030818

PRAI US 2003-468324P P 20030506

AB The invention concerns a method and device for reducing or substantially eliminating methanol crossover from the anode to the cathode of a direct methanol fuel cell and for increasing catalyst efficiency in which a catalyst ink layer comprising an electron conductive and proton conductive binder material is applied either to the anode electrode or the **electrolyte** layer of the direct methanol fuel cell.

IC ICM H01M004-86
ICS H01M004-94; B05D005-12; H01M004-88

INCL 429044000; 429042000; 502101000; 427115000

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 67

ST methanol fuel cell electrode catalyst

IT Sulfonic acids, uses
RL: DEV (Device component use); USES (Uses)
(direct methanol fuel cell electrode catalyst)

IT Catalysts
(electrocatalysts; direct methanol fuel cell electrode catalyst)

IT Polyoxyalkylenes, uses
RL: MOA (Modifier or additive use); USES (Uses)
(fluorine- and sulfo-containing, ionomers; direct methanol fuel cell electrode catalyst)

IT **Polymers**, uses
RL: DEV (Device component use); USES (Uses)
(graft; direct methanol fuel cell electrode catalyst)

IT **Fluoropolymers**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(polyoxyalkylene-, sulfo-containing, ionomers; direct methanol fuel cell electrode catalyst)

IT Ionomers
RL: MOA (Modifier or additive use); USES (Uses)
(polyoxyalkylenes, fluorine- and sulfo-containing; direct methanol fuel cell electrode catalyst)

IT Fuel cells
(proton exchange membrane; direct methanol fuel cell electrode catalyst)

IT Sulfonic acids, uses
RL: DEV (Device component use); USES (Uses)
(salts; direct methanol fuel cell electrode catalyst)

IT 12714-36-2, Platinum 50, ruthenium 50 atomic
RL: CAT (Catalyst use); USES (Uses)
(direct methanol fuel cell electrode catalyst)

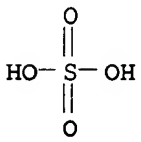
IT 62-53-3, Aniline, processes 109-97-7, Pyrrole 275-51-4, Azulene
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(direct methanol fuel cell electrode catalyst)

IT 7664-38-2D, Phosphoric acid, derivative **7664-93-9D, Sulfuric acid**, derivative 13598-36-2, Phosphonic acid 13598-36-2D, Phosphonic acid, salt 25233-30-1, Polyaniline 30604-81-0, Polypyrrole 82451-56-7, Polyazulene **679809-71-3**
RL: DEV (Device component use); USES (Uses)
(direct methanol fuel cell electrode catalyst)

IT 67-56-1, Methanol, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(direct methanol fuel cell electrode catalyst)

IT 104-15-4, p-Toluenesulfonic acid, uses **8062-15-5**, Lignosulfonic acid
RL: MOA (Modifier or additive use); USES (Uses)
(proton conductive material; direct methanol fuel cell electrode

catalyst)
IT **7664-93-9D, Sulfuric acid**, derivative
679809-71-3
RL: DEV (Device component use); USES (Uses)
(direct methanol fuel cell electrode catalyst)
RN 7664-93-9 HCAPLUS
CN Sulfuric acid (8CI, 9CI) (CA INDEX NAME)



RN 679809-71-3 HCAPLUS
CN Lignin, polymer with benzenamine, graft (9CI) (CA INDEX NAME)

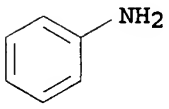
CM 1

CRN 9005-53-2
CMF Unspecified
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 62-53-3
CMF C6 H7 N



IT **8062-15-5**, Lignosulfonic acid
RL: MOA (Modifier or additive use); USES (Uses)
(proton conductive material; direct methanol fuel cell electrode catalyst)
RN 8062-15-5 HCAPLUS
CN Lignosulfonic acid (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L19 ANSWER 8 OF 17 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:142664 HCAPLUS
DN 140:149238
TI Lead-acid **battery** having an organic **polymer** additive
IN Kozawa, Akiya; Hrada, Hirofumi; Yokoi, Giyun
PA Japan
SO U.S. Pat. Appl. Publ., 10 pp., Cont.-in-part of U.S. Ser. No. 439,258.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 2
PATENT NO. KIND DATE APPLICATION NO. DATE

applicant

PI	US 2004033422	A1	20040219	US 2003-634592	20030805
	JP 2002323862	A2	20021108	JP 2002-14177	20020516
	US 2003228525	A1	20031211	US 2003-439258	20030515
	JP 2004356076	A2	20041216	JP 2003-185790	20030526
	JP 2004356077	A2	20041216	JP 2003-185791	20030526
	WO 2004105161	A2	20041202	WO 2004-IB1727	20040526
	WO 2004105161	A3	20050616		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI	JP 2002-14177	A	20020516
	US 2003-439258	A2	20030515
	JP 2003-185790	A	20030526
	JP 2003-185791	A	20030526
	JP 2001-15418	A	20010124
	US 2003-634592	A	20030805

AB The invention concerns a process for prolonging the life of a lead-acid **battery** by adding an organic **polymer** and ultra fine **lignin** to its **electrolyte** and then discharging the **battery** at a high current rate and the **battery** so produced.

IC ICM H01M010-08
ICS H01M010-44

INCL 429347000; 429204000; 429205000; 429050000

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

ST lead acid **battery** org **polymer** additive

IT **Battery electrolytes**
(lead-acid **battery** having organic **polymer** additive)

IT **Polysiloxanes**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(lead-acid **battery** having organic **polymer** additive)

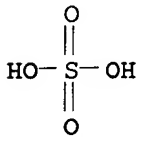
IT Secondary **batteries**
(lead-acid; lead-acid **battery** having organic **polymer** additive)

IT 7440-36-0, Antimony, miscellaneous
RL: MSC (Miscellaneous)
(impurity; lead-acid **battery** having organic **polymer** additive)

IT 107-21-1, Ethylene glycol, uses 7440-31-5, Tin, uses 7440-74-6, Indium, uses **7446-14-2**, Lead sulfate **7727-43-7**, Barium sulfate **9002-89-5**, **Polyvinyl** alcohol **9003-01-4**, **Polyacrylic** acid **9005-53-2**, **Lignin**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(lead-acid **battery** having organic **polymer** additive)

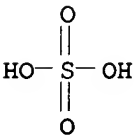
IT **7446-14-2**, Lead sulfate **7727-43-7**, Barium sulfate **9002-89-5**, **Polyvinyl** alcohol **9003-01-4**, **Polyacrylic** acid **9005-53-2**, **Lignin**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(lead-acid **battery** having organic **polymer** additive)

RN 7446-14-2 HCAPLUS
CN Sulfuric acid, lead(2+) salt (1:1) (8CI, 9CI) (CA INDEX NAME)



● Pb(II)

RN 7727-43-7 HCAPLUS
CN Sulfuric acid, barium salt (1:1) (8CI, 9CI) (CA INDEX NAME)

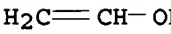


● Ba

RN 9002-89-5 HCAPLUS
CN Ethenol, homopolymer (9CI) (CA INDEX NAME)

CM 1

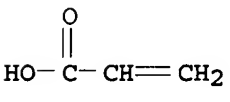
CRN 557-75-5
CMF C2 H4 O



RN 9003-01-4 HCAPLUS
CN 2-Propenoic acid, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-10-7
CMF C3 H4 O2



RN 9005-53-2 HCAPLUS
CN Lignin (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

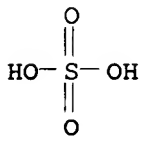
L19 ANSWER 9 OF 17 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:799369 HCAPLUS
DN 140:131003
TI Beneficial action of complex organic **polymer** additions for the regeneration of deteriorated lead acid **batteries**
AU Sugawara, M.; Tachibana, K.; Kozawa, A.; Yamashita, M.; Ikeda, S.; Brodd, R. J.
CS Faculty of Engineering, Yamagata University, Japan
SO ITE Letters on Batteries, New Technologies & Medicine (2003), 4(4), 424-431
CODEN: ILBMF9; ISSN: 1531-2046
PB ITE-Hohwa Inc.
DT Journal
LA English
AB Complex organic **polymers** with, or without, carbon additives were found to be very effective in reactivating deteriorated lead acid **batteries**. The beneficial effects of the **polymers**, reported in this paper, were confirmed by measuring the electrochem. effects sep. on both the anode and cathode in car **batteries** and in expts. with pure lead electrodes. The beneficial effects of the additives are found to reside on the anode and not the cathode. In the presence of the additive, the lead sulfate, PbSO4, crystals formed on the anode were found to be finer and more active.
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST **polymer** additive **electrolyte** lead acid **battery** regeneration
IT **Battery electrolytes**
Passivation
(beneficial action of complex organic **polymer** addns. for regeneration of deteriorated lead acid **batteries**)
IT **Acrylic polymers**, uses
Polymers, uses
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(**electrolyte** additives; beneficial action of complex organic **polymer** addns. for regeneration of deteriorated lead acid **batteries**)
IT Secondary **batteries**
(lead-acid; beneficial action of complex organic **polymer** addns. for regeneration of deteriorated lead acid **batteries**)
IT Vinyl compounds, uses
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(**polymers**, **electrolyte** additives; beneficial action of complex organic **polymer** addns. for regeneration of deteriorated lead acid **batteries**)
IT **7446-14-2**, Lead sulfate
RL: CPS (Chemical process); FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); FORM (Formation, nonpreparative); PROC (Process)
(beneficial action of complex organic **polymer** addns. for regeneration of deteriorated lead acid **batteries**)
IT 132036-01-2, **Sulfuric acid**, antimony salt
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(beneficial action of complex organic **polymer** addns. for regeneration of deteriorated lead acid **batteries**)

IT **8068-05-1, Lignin**, alkali **9002-89-5, Polyvinyl** alcohol 10031-62-6, Tin sulfate 13464-82-9, Indium sulfate
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(**electrolyte** additives; beneficial action of complex organic **polymer** addns. for regeneration of deteriorated lead acid **batteries**)

IT 7440-44-0, Carbon, uses
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(ultrafine powders, **electrolyte** additives; beneficial action of complex organic **polymer** addns. for regeneration of deteriorated lead acid **batteries**)

IT **7446-14-2**, Lead sulfate
RL: CPS (Chemical process); FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); FORM (Formation, nonpreparative); PROC (Process)
(beneficial action of complex organic **polymer** addns. for regeneration of deteriorated lead acid **batteries**)

RN 7446-14-2 HCAPLUS
CN Sulfuric acid, lead(2+) salt (1:1) (8CI, 9CI) (CA INDEX NAME)



● Pb(II)

IT **8068-05-1, Lignin**, alkali **9002-89-5, Polyvinyl** alcohol
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(**electrolyte** additives; beneficial action of complex organic **polymer** addns. for regeneration of deteriorated lead acid **batteries**)

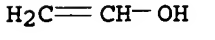
RN 8068-05-1 HCAPLUS
CN Lignin, alkali (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9002-89-5 HCAPLUS
CN Ethenol, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 557-75-5
CMF C2 H4 O



RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L19 ANSWER 10 OF 17 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:772168 HCAPLUS
DN 137:281893
TI Lead-acid **battery**
IN Honbo, Kyoko; Hoshi, Eiji; Muranaka, Yasushi; Takeuchi, Seiji
PA Hitachi, Ltd., Japan; Shin-Kobe Electric Machinery Co. Ltd.
SO Eur. Pat. Appl., 31 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1248307	A1	20021009	EP 2002-5531	20020311
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	JP 2002367613	A2	20021220	JP 2002-67800	20020313
	US 2003049528	A1	20030313	US 2002-96505	20020313
	US 2004180264	A1	20040916	US 2004-812005	20040330
PRAI	JP 2001-104080	A	20010403		
	US 2002-96505	A1	20020313		

AB A lead-acid **battery** comprises an anode, a cathode, an **electrolyte**; the anode is added a carbon containing simple substance and/or a compound, both having a catalysis for desulfurization or SOx oxidation by adding to or loading on a carbon material such as active C, carbon black or the like. When such a lead-acid **battery** whose anode contains a carbon material containing or loading thereon the above simple substance and/or compound, is applied to elec. cars, various hybrid cars, power storage systems, elevators, electromotive tools, and power source systems such as uninterruptible power source, distributed power source and the like, all having high input and output requirements, stable control can be obtained.
IC ICM H01M004-14
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST anode additive lead acid **battery**
IT Carbon fibers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(activated; lead-acid **battery** for applications with high input and output requirements)
IT Deodorization
(catalyst; lead-acid **battery** for applications with high input and output requirements)
IT Fuel oil
Petroleum refining catalysts
(desulfurization; lead-acid **battery** for applications with high input and output requirements)
IT **Battery** anodes
Catalysts
Desulfurization catalysts
Petroleum refining catalysts
(lead-acid **battery** for applications with high input and output requirements)
IT Hydroxides (inorganic)
Oxides (inorganic), uses
Sulfates, uses
RL: CAT (Catalyst use); USES (Uses)
(lead-acid **battery** for applications with high input and output requirements)

IT Alkali metal compounds
Alkaline earth compounds
Rare earth compounds
RL: CAT (Catalyst use); MOA (Modifier or additive use); USES (Uses)
(lead-acid **battery** for applications with high input and output requirements)

IT Carbon black, uses
Coke
RL: MOA (Modifier or additive use); USES (Uses)
(lead-acid **battery** for applications with high input and output requirements)

IT Secondary **batteries**
(lead-acid; lead-acid **battery** for applications with high input and output requirements)

IT Carbon fibers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(pitch-based; lead-acid **battery** for applications with high input and output requirements)

IT Carbon fibers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**polyacrylonitrile**-based; lead-acid **battery** for applications with high input and output requirements)

IT Carbon fibers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(vapor phase grown; lead-acid **battery** for applications with high input and output requirements)

IT **7664-93-9P**, **Sulfuric acid**, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(catalysts; lead-acid **battery** for applications with high input and output requirements)

IT 7439-96-5D, Manganese, compound 7439-98-7D, Molybdenum, compound 7440-02-0D, Nickel, compound 7440-03-1D, Niobium, compound 7440-09-7D, Potassium, compound 7440-17-7D, Rubidium, compound 7440-22-4D, Silver, compound 7440-23-5D, Sodium, compound 7440-24-6D, Strontium, compound 7440-25-7D, Tantalum, compound 7440-33-7D, Tungsten, compound 7440-39-3D, Barium, compound 7440-46-2D, Cesium, compound 7440-48-4D, Cobalt, compound 7440-50-8D, Copper, compound 7440-58-6D, Hafnium, compound 7440-66-6D, Zinc, compound
RL: CAT (Catalyst use); USES (Uses)
(lead-acid **battery** for applications with high input and output requirements)

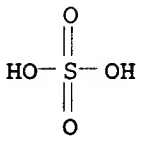
IT 7440-62-2D, Vanadium, compound
RL: CAT (Catalyst use); MOA (Modifier or additive use); USES (Uses)
(lead-acid **battery** for applications with high input and output requirements)

IT 39299-68-8
RL: DEV (Device component use); USES (Uses)
(lead-acid **battery** for applications with high input and output requirements)

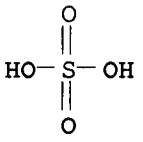
IT 1307-96-6, Cobalt oxide coo, uses 1313-27-5, Molybdenum trioxide, uses 1314-62-1, Vanadium oxide (V2O5), uses 7440-22-4, Silver, uses 7440-25-7, Tantalum, uses 7440-44-0, Carbon, uses 7488-54-2, Rubidium sulfate **7727-43-7**, Barium sulfate 7733-02-0, Zinc sulfate 7757-82-6, **Sulfuric acid** disodium salt, uses 7759-02-6, Strontium sulfate 7778-80-5, Potassium sulfate, uses 7782-42-5, Graphite, uses 7785-87-7, Manganese sulfate mnso4 **9005-53-2**, **Lignin**, uses 10294-54-9, Cesium sulfate 12011-97-1, Molybdenum carbide moc 12025-99-9, Manganese hydroxide oxide mnooh 12069-85-1, Hafnium carbide hfc 12069-94-2, Niobium carbide nbc 12070-12-1, Tungsten carbide wc 18933-05-6, Manganese hydroxide

Added to Anode

21041-93-0, Cobalt dihydroxide 51311-17-2, Carbon fluoride
RL: MOA (Modifier or additive use); USES (Uses)
(lead-acid **battery** for applications with high input and output requirements)
IT 12624-32-7, Sulfur oxide
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(oxidation; lead-acid **battery** for applications with high input and output requirements)
IT **7664-93-9P, Sulfuric acid**, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(catalysts; lead-acid **battery** for applications with high input and output requirements)
RN 7664-93-9 HCAPLUS
CN Sulfuric acid (8CI, 9CI) (CA INDEX NAME)



IT **7727-43-7**, Barium sulfate **9005-53-2, Lignin**,
uses
RL: MOA (Modifier or additive use); USES (Uses)
(lead-acid **battery** for applications with high input and output requirements)
RN 7727-43-7 HCAPLUS
CN Sulfuric acid, barium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



RN 9005-53-2 HCAPLUS
CN Lignin (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L19 ANSWER 11 OF 17 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:816310 HCAPLUS
DN 135:360204
TI Lead acid **battery** and its additive
IN Ikeda, Shoichiro; Yamashita, Masamichi; Ozawa, Akiya
PA Mase, Shunzo, Japan; Tagawa, Kazuo
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent

LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001313064	A2	20011109	JP 2000-169775	20000428
PRAI	JP 2000-169775		20000428		

AB The **battery** contains poly(**acrylic** acid) or its esters, and optionally poly(vinyl alc.) in its **electrolyte** solution and/or anode active mass mixture The additive includes poly(**acrylic** acid) or its esters, and may also contain poly(vinyl alc.), soluble **lignin**, SnSO4, Sn(SO4)2, and/or colloidal PbSO4.

IC ICM H01M010-08
ICS H01M004-14; H01M004-62

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

ST lead **battery electrolyte** anode additive **polyacrylic** acid; **polyacrylate** ester lead **battery** additive

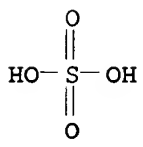
IT Secondary **batteries**
(lead-acid; poly(**acrylic** acid) and **polyacrylate** ester based additives in **electrolytes** and anodes for lead acid **batteries**)

IT **7446-14-2**, Lead sulfate
RL: MOA (Modifier or additive use); USES (Uses)
(colloidal; poly(**acrylic** acid) and **polyacrylate** ester based additives in **electrolytes** and anodes for lead acid **batteries**)

IT 7488-55-3, Stannous sulfate **9002-89-5**, Poly(vinyl alcohol) **9003-01-4**, Poly(**acrylic** acid) **9003-01-4D**, Poly(**acrylic** acid), esters **9005-53-2**, **Lignin**, uses 19307-28-9, Stannic sulfate
RL: MOA (Modifier or additive use); USES (Uses)
(poly(**acrylic** acid) and **polyacrylate** ester based additives in **electrolytes** and anodes for lead acid **batteries**)

IT **7446-14-2**, Lead sulfate
RL: MOA (Modifier or additive use); USES (Uses)
(colloidal; poly(**acrylic** acid) and **polyacrylate** ester based additives in **electrolytes** and anodes for lead acid **batteries**)

RN 7446-14-2 HCAPLUS
CN Sulfuric acid, lead(2+) salt (1:1) (8CI, 9CI) (CA INDEX NAME)



● Pb(II)

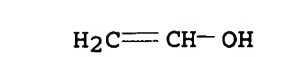
IT **9002-89-5**, Poly(vinyl alcohol) **9003-01-4**, Poly(**acrylic** acid) **9003-01-4D**, Poly(**acrylic** acid), esters **9005-53-2**, **Lignin**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(poly(**acrylic** acid) and **polyacrylate** ester based

additives in **electrolytes** and anodes for lead acid **batteries**)

RN 9002-89-5 HCAPLUS
CN Ethenol, homopolymer (9CI) (CA INDEX NAME)

CM 1

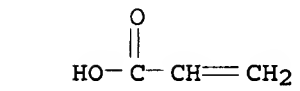
CRN 557-75-5
CMF C2 H4 O



RN 9003-01-4 HCAPLUS
CN 2-Propenoic acid, homopolymer (9CI) (CA INDEX NAME)

CM 1

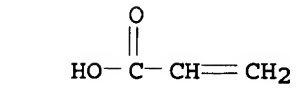
CRN 79-10-7
CMF C3 H4 O2



RN 9003-01-4 HCAPLUS
CN 2-Propenoic acid, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-10-7
CMF C3 H4 O2



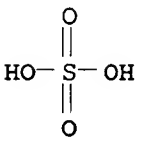
RN 9005-53-2 HCAPLUS
CN Lignin (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L19 ANSWER 12 OF 17 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:796615 HCAPLUS
DN 135:346875
TI Sealed lead acid **batteries**
IN Nakayama, Takuo; Yoshimura, Tsunesuke; Sasaki, Takehiro
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

PI JP 2001307761 A2 20011102 JP 2000-117475 20000419
PRAI JP 2000-117475 20000419
AB The **batteries** have a **polymer** case, an electrode-separator stack in the case, and an **electrolyte** retained in the stack; where the anode active mass contains 2.1-5.0% BaSO4, and the **battery** case is (modified) poly(phenylene ether). The anode active mass may also contain 0.15-0.7% Na lignosulfonate.
IC ICM H01M010-06
ICS H01M002-02; H01M004-62
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST sealed lead **battery** anode barium sulfonate; sodium lignosulfonate lead **battery** anode; polyphenylene ether sealed lead **battery** case
IT **Battery** anodes
(anodes containing barium sulfate and sodium lignosulfonate for sealed lead acid **batteries** with (modified) poly(phenylene ether) cases)
IT Secondary **batteries**
(lead-acid; anodes containing barium sulfate and sodium lignosulfonate for sealed lead acid **batteries** with (modified) poly(phenylene ether) cases)
IT 7439-92-1, Lead, uses 9041-80-9, Poly(phenylene ether) 25805-30-5
RL: DEV (Device component use); USES (Uses)
(anodes containing barium sulfate and sodium lignosulfonate for sealed lead acid **batteries** with (modified) poly(phenylene ether) cases)
IT **7727-43-7**, Barium sulfate **8061-51-6**, Sodium lignosulfonate
RL: MOA (Modifier or additive use); USES (Uses)
(anodes containing barium sulfate and sodium lignosulfonate for sealed lead acid **batteries** with (modified) poly(phenylene ether) cases)
IT **7727-43-7**, Barium sulfate **8061-51-6**, Sodium lignosulfonate
RL: MOA (Modifier or additive use); USES (Uses)
(anodes containing barium sulfate and sodium lignosulfonate for sealed lead acid **batteries** with (modified) poly(phenylene ether) cases)
RN 7727-43-7 HCAPLUS
CN Sulfuric acid, barium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



● Ba

RN 8061-51-6 HCAPLUS
CN Lignosulfonic acid, sodium salt (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L19 ANSWER 13 OF 17 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2000:609047 HCAPLUS
DN 133:180395
TI Solid gel membrane
IN Chen, Muguo; Tsai, Tsepin; Yao, Wayne; Chang, Yuen-ming; Li, Lin-feng;

Tom, Karen
PA Reveo, Inc., USA
SO PCT Int. Appl., 44 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 5

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000051198	A2	20000831	WO 2000-US4881	20000225
	WO 2000051198	A3	20010111		
	W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW				
	RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	US 2003099872	A1	20030529	US 1999-259068	19990226
	US 6605391	B2	20030812		
	US 6358651	B1	20020319	US 2000-482126	20000111
	CA 2362298	AA	20000831	CA 2000-2362298	20000225
	EP 1155467	A2	20011121	EP 2000-913617	20000225
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	BR 2000008506	A	20020205	BR 2000-8506	20000225
	JP 2002538585	T2	20021112	JP 2000-601703	20000225
	AU 772935	B2	20040513	AU 2000-35030	20000225
PRAI	US 1999-259068	A	19990226		
	US 2000-482126	A	20000111		
	WO 2000-US4881	W	20000225		

AB A highly conductive **polymer** based solid gel membrane is especially well-suited for use in such electrochem. devices as metal/air, Zn/MnO2, Ni/Cd **batteries** and hydrogen fuel cells, as well as in electrochromic devices such as smart windows and flat panel displays. Furthermore, in rechargeable electrochem. cells, the solid gel membrane is highly-effective for use as a separator between the anode and charging electrode. In accordance with the principles of the invention, the highly conductive membrane comprises a support or substrate and a **polymeric** gel composition having an ionic species contained in a solution phase thereof. The **polymer**-based gel is prepared by adding an ionic species to a monomer solution followed by **polymerization** After **polymerization**, the ionic species is embedded in the **polymer** -based gel where it remains. The ionic species behaves like a liquid **electrolyte**, while at the same time, the **polymer**-based solid gel membrane provides a smooth impenetrable surface that allows for the exchange of ions. An advantage of the novel membrane is that its measured ionic conductivity is much higher than previously observed in prior art solid **electrolytes** or **electrolyte-polymer** films.

IC ICM H01M006-22
ICS H01M012-06; H01B001-12; C08F251-02; C08F257-02; C08L051-02; C08F251-00; C08F273-00; B01D069-10; G02F001-15
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 35, 38, 74
ST **battery electrolyte** gel membrane; fuel cell **electrolyte** gel membrane; electrochromic device

electrolyte gel membrane; display device **electrolyte** gel membrane

IT Windows
Windows
(electrochromic; ionic conducting **polymer**-based solid gel membrane)

IT Optical imaging devices
(flat panel; ionic conducting **polymer**-based solid gel membrane)

IT Fuel cell separators
Fuel cells
Polymerization
Polymerization catalysts
Secondary **batteries**
Secondary **battery** separators
(ionic conducting **polymer**-based solid gel membrane)

IT Polyamides, uses
Polyolefins
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(ionic conducting **polymer**-based solid gel membrane)

IT Polyesters, uses
Polysulfones, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(ionic conducting **polymer**-based solid gel membrane)

IT Alkali metal oxides
RL: CAT (Catalyst use); USES (Uses)
(peroxides; ionic conducting **polymer**-based solid gel membrane)

IT Peroxysulfates
RL: CAT (Catalyst use); USES (Uses)
(peroxydisulfates, alkali metal; ionic conducting **polymer**-based solid gel membrane)

IT **Polymerization**
(**photopolymn.**; ionic conducting **polymer**-based solid gel membrane)

IT **Polymerization**
(radiochem.; ionic conducting **polymer**-based solid gel membrane)

IT Electrochromic devices
Electrochromic devices
(windows; ionic conducting **polymer**-based solid gel membrane)

IT 50926-11-9, Ito
RL: TEM (Technical or engineered material use); USES (Uses)
(glass; ionic conducting **polymer**-based solid gel membrane)

IT 7727-54-0, Ammonium persulfate
RL: CAT (Catalyst use); USES (Uses)
(ionic conducting **polymer**-based solid gel membrane)

IT 1313-13-9, Manganese dioxide, uses 1313-99-1, Nickel oxide, uses 7429-90-5, Aluminum, uses 7439-89-6, Iron, uses 7439-93-2, Lithium, uses 7439-95-4, Magnesium, uses 7440-02-0, Nickel, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-43-9, Cadmium, uses 7440-44-0, Carbon, uses 7440-66-6, Zinc, uses 11104-61-3, Cobalt oxide 12194-71-7, Perovskite 20667-12-3, Silver oxide 30280-72-9, **Acrylic** acid-**methylenebisacrylamide copolymer** 84943-80-6, **Acrylic** acid-**methylenebisacrylamide**-1-vinyl-2-pyrrolidinone **copolymer**
RL: DEV (Device component use); USES (Uses)
(ionic conducting **polymer**-based solid gel membrane)

IT 1310-58-3, Potassium hydroxide, uses 1310-65-2, Lithium hydroxide

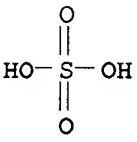
1310-73-2, Sodium hydroxide, uses 7601-90-3, Perchloric acid, uses 7647-01-0, Hydrochloric acid, uses 7647-14-5, Sodium chloride, uses 7664-38-2, Phosphoric acid, uses **7664-93-9**, **Sulfuric acid**, uses 7778-80-5, Potassium sulfate, uses **9002-89-5**, **Polyvinyl** alcohol 9004-34-6, Cellulose, uses 12125-02-9, Ammonium chloride, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(ionic conducting **polymer**-based solid gel membrane)

IT 79-06-1, 2-Propenamide, reactions 79-10-7, **Acrylic** acid, reactions 79-41-4, reactions 88-12-0, 1-Vinyl-2-pyrrolidinone, reactions 110-17-8, Fumaric acid, reactions 110-26-9 541-47-9, 3,3-Dimethyl **acrylic** acid 627-64-5, Fumaramide 2210-25-5, N-**Isopropylacryl** amide 2680-03-7 3039-83-6, Vinylsulfonic acid, sodium salt 10117-38-1, Potassium sulfite
RL: RCT (Reactant); RACT (Reactant or reagent)
(ionic conducting **polymer**-based solid gel membrane)

IT **9004-32-4**, Carboxymethyl cellulose 9005-25-8, Corn starch, uses 25038-59-9, Polyethylene terephthalate, uses 25704-18-1, Poly(sodium 4-styrenesulfonate) 97917-26-5, **Acrylamide-Methacrylic** acid-methylenebis(**acrylamide**) **copolymer** 104983-61-1, Maleic acid-styrenesulfonic acid **copolymer**, sodium salt
RL: TEM (Technical or engineered material use); USES (Uses)
(ionic conducting **polymer**-based solid gel membrane)

IT **7664-93-9**, **Sulfuric acid**, uses
9002-89-5, **Polyvinyl** alcohol
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(ionic conducting **polymer**-based solid gel membrane)

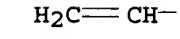
RN 7664-93-9 HCAPLUS
CN Sulfuric acid (8CI, 9CI) (CA INDEX NAME)



RN 9002-89-5 HCAPLUS
CN Ethenol, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 557-75-5
CMF C2 H4 O



IT **9004-32-4**, Carboxymethyl cellulose
RL: TEM (Technical or engineered material use); USES (Uses)
(ionic conducting **polymer**-based solid gel membrane)

RN 9004-32-4 HCAPLUS
CN Cellulose, carboxymethyl ether, sodium salt (8CI, 9CI) (CA INDEX NAME)

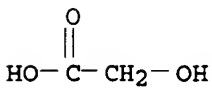
CM 1

CRN 9004-34-6
CMF Unspecified
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

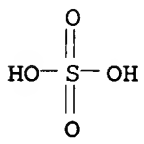
CRN 79-14-1
CMF C2 H4 O3



L19 ANSWER 14 OF 17 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1997:173980 HCAPLUS
DN 126:214351
TI Role of **lignin** on depressing of anomalous growth of Pb negative electrode during charge-discharge cycling
AU Taguchi, Masami; Hirasawa, Tokiyoshi
CS Dep. Materials Eng., Akita Univ., Akita, 010, Japan
SO Nippon Kinzoku Gakkaishi (1997), 61(1), 77-82
CODEN: NIKGAV; ISSN: 0021-4876
PB Nippon Kinzoku Gakkai
DT Journal
LA Japanese
AB The neg. electrode in the lead-acid **battery** contains a spongy Pb as the active material and a natural **polymer**, **lignin**. During repeated charge-discharge cycling in a **sulfuric acid** solution without **lignin**, an anomalous growth of acicular precipitate is observed on the neg. electrode. The growth is depressed by addition of **lignin** to the **electrolyte**. AES and XPS of the electrode after charge-discharge cycling show that the surface is made up of PbSO4 single phase in the **lignin**-containing **electrolyte**, whereas the formation of metallic Pb occurs in the **electrolyte** without **lignin**. The **lignin** has both a water-repellent carbon chain and several water-acid functional groups., such as sulfonic acid. It absorbs the neg. electrode; the carbon chain is directed at the surface to be coated. The adsorbate depresses the redeposition of metallic Pb from Pb2+ ions on the surface which can take place locally as a side reaction in charging. Consequently, the depressing of the anomalous growth can be explained by the hindrance to the redeposition.
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST lead deposition inhibition lead acid **battery**; **lignin** lead deposition depressing **battery** anode
IT Secondary **batteries**
(lead-acid; **lignin** for depressing anomalous growth of lead anode during charge-discharge cycling)
IT **Battery electrolytes**
(**lignin** additive; **lignin** for depressing anomalous growth of lead anode during charge-discharge cycling)
IT **Battery** anodes
(porous lead-**lignin**; **lignin** for depressing

anomalous growth of lead anode during charge-discharge cycling)
IT **9005-53-2, Lignin**, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(**lignin** for depressing anomalous growth of lead anode during charge-discharge cycling)
IT **7446-14-2**, Lead sulfate
RL: FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); FORM (Formation, nonpreparative); PROC (Process)
(**lignin** for depressing anomalous growth of lead anode during charge-discharge cycling)
IT 7439-92-1, Lead, uses
RL: DEV (Device component use); USES (Uses)
(porous, anodes; **lignin** for depressing anomalous growth of lead anode during charge-discharge cycling)
IT **9005-53-2, Lignin**, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(**lignin** for depressing anomalous growth of lead anode during charge-discharge cycling)
RN 9005-53-2 HCAPLUS
CN Lignin (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **7446-14-2**, Lead sulfate
RL: FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); FORM (Formation, nonpreparative); PROC (Process)
(**lignin** for depressing anomalous growth of lead anode during charge-discharge cycling)
RN 7446-14-2 HCAPLUS
CN Sulfuric acid, lead(2+) salt (1:1) (8CI, 9CI) (CA INDEX NAME)



● Pb(II)

L19 ANSWER 15 OF 17 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1990:594884 HCAPLUS
DN 113:194884
TI Ionic semiconductive materials and their applications
IN Peck, Robert Lester
PA T and G Corp., USA
SO Eur. Pat. Appl., 32 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 370149	A2	19900530	EP 1988-312035	19881219
	EP 370149	A3	19921125		

EP 370149 B1 19960626
R: BE, CH, DE, ES, FR, GB, IT, LI, NL, SE
CA 1309802 A1 19921103 CA 1988-586314 19881219
AU 8827066 A1 19900531 AU 1988-27066 19881220
AU 614565 B2 19910905
JP 02152166 A2 19900612 JP 1989-2665 19890109
PRAI US 1988-275977 A 19881125

AB The materials, having ionic conductivity strongly depending on temperature, comprise a **polymeric** matrix, .apprx.10-50 weight% dispersed **polymer** of H2O-absorbing and bonding long-chain mols., and a coupling agent for facilitating bonding between the dispersed **polymer** and matrix. The matrix is selected from poly(vinylidene chloride), PVC, poly(vinylidene fluoride), polyethylene, polypropylene, polyurethane, ethylene-vinyl acetate **copolymer**, and PhOH-HCHO **polymer** ; the dispersed **polymer** is selected from PEO, poly(**acrylic** acid), **polyacrylamide**, hydroxyethyl cellulose, gelatin, pectin, cellulose and starch; and the coupling agent is selected from poly(**acrylic** acid), phenolic resin, cellulosic titanate, C, **lignin**, and SiO2. **Batteries** use these materials as separators and in their electrodes, the weight ratio of the semiconductor material:electrode material is .apprx.1.0-1.5. The ionic semiconductive materials are prepared by mixing and forming into a required shape. When inserted between **H2SO4** and CuSO4 **electrolytes**, a p.d. is established across the materials and the current attributable to Cu2+ diffusion is ≤16%.

IC ICM H01L029-28
ICS H01M002-16; C25B013-08; B01D069-00
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 76
ST **battery** separator ionic semiconductive **polymer**; electrode **battery** ionic semiconductive **polymer**

IT Carbon black, uses and miscellaneous
Phenolic resins, uses and miscellaneous
RL: USES (Uses)
(ionic semiconductive materials containing coupling agents of, for **battery** electrodes and separators)

IT Gelatins, uses and miscellaneous
RL: USES (Uses)
(ionic semiconductive materials containing dispersed, for **battery** electrodes and separators)

IT Urethane **polymers**, uses and miscellaneous
RL: PRP (Properties)
(ionic semiconductive materials containing matrix of, for **battery** electrodes and separators)

IT **Batteries**, secondary
(ionic semiconductive materials for)

IT Electrodes
(**battery**, ionic semiconductive materials for)

IT 9002-88-4
RL: USES (Uses)
(activated carbon-filled, ionic semiconductive materials containing matrix of, for **battery** electrodes and separators)

IT 7631-86-9, Silica, uses and miscellaneous **9005-53-2**, **Lignin**, uses and miscellaneous 103850-22-2, LICA 12 107666-69-3, Plexar 100
RL: USES (Uses)
(ionic semiconductive materials containing coupling agents of, for **battery** electrodes and separators)

IT 9000-69-5, Pectin **9003-01-4D**, Poly(**acrylic** acid), crosslinked 9003-05-8, **Polyacrylamide** 9004-34-6, Cellulose, uses and miscellaneous 9004-62-0, Hydroxyethyl cellulose 9005-25-8, Starch, uses and miscellaneous 9007-16-3, Carbomer 934 25322-68-3 120993-97-7, SGP 147
RL: USES (Uses)
(ionic semiconductive materials containing dispersed, for **battery** electrodes and separators)

IT 9002-85-1, Saran 864 9002-86-2, VC-54 9002-88-4, Polyethylene 9003-07-0D, Polypropene, maleated 9003-35-4 24937-78-8 24937-79-9, Poly(vinylidene fluoride) 83271-61-8, Polypropene
RL: PRP (Properties)
(ionic semiconductive materials containing matrix of, for **battery** electrodes and separators)

IT **9005-53-2**, **Lignin**, uses and miscellaneous
RL: USES (Uses)
(ionic semiconductive materials containing coupling agents of, for **battery** electrodes and separators)

RN 9005-53-2 HCAPLUS
CN Lignin (8CI, 9CI) (CA INDEX NAME)

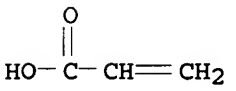
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **9003-01-4D**, Poly(**acrylic** acid), crosslinked
RL: USES (Uses)
(ionic semiconductive materials containing dispersed, for **battery** electrodes and separators)

RN 9003-01-4 HCAPLUS
CN 2-Propenoic acid, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-10-7
CMF C3 H4 O2



L19 ANSWER 16 OF 17 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1989:234635 HCAPLUS
DN 110:234635
TI Ionic semiconductor materials and their applications
IN Peck, Robert L.
PA T and G. Corp., USA
SO U.S., 16 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4797190	A	19890110	US 1986-915994	19861006
	US 5055171	A	19911008	US 1990-542304	19900622
	US 5211827	A	19930518	US 1991-740061	19910805
PRAI	US 1986-915994	A2	19861006		
	US 1988-275977	B2	19881125		
	US 1990-542304	A3	19900622		

AB The materials having a temperature-dependent ion-transport rate comprise an inert man-made **polymeric** matrix and a hydrogel. The mols. of the hydrogel are substantially uniformly dispersed in the matrix to form a composite structure where the contact between hydrogel mols. is minimized by the matrix and the formation of channels is limited, the composite allowing the transfer of ions and preventing the passage of unionized matter. The hydrogel comprises .apprx.10-50 weight% of the dry composite, and the bonding between the hydrogel mols. and the matrix is sufficient to prevent their leach-out from the composite. The matrix is selected from poly(vinylidene chloride), PVC, poly(vinylidene fluoride), polyethylene, polypropylene, polyurethane, and PhOH-HCHO resin. The hydrogel is selected from polyethylene oxide, poly(**acrylic** acid) and **polyacrylamide** or devised from hydroxyethyl cellulose, gelatin, pectin, cellulose, and starch. When the composite seps. **H2SO4** and CuSO4 **electrolytes** and a p.d. is applied across the composite, the current attributable to Cu2+ diffusion is ≤16% of the equilibrium current. The composite materials may be used in **batteries** and fuel cells, for water purification, as solid **polymeric electrolytes**, in breathable waterproof coatings, and in numerous other applications for controlled moisture or ion transfer. Various applications of different materials are reported. A Zn-MnO2 dry-cell **battery** with a separator constructed from 30% polyethylene oxide and 70% poly(vinylidene chloride) delivered a current equal to that of a conventional **battery**, and could be repeatably deeply discharged and charged, limited only by irregular replating of the Zn.

IC ICM C25B013-00

INCL 204296000

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 61, 72, 76

ST semiconductor ionic **polymer** hydrogel; fuel cell ionic semiconductor; **battery** ionic semiconductor; coating waterproof ionic semiconductor; water purifn ionic semiconductor; polyethylene oxide polyvinylidene chloride **battery**; zinc **battery** separator ionic semiconductor; manganese dioxide zinc **battery** separator

IT Phenolic resins, uses and miscellaneous
RL: USES (Uses)
(coupling agents, membranes containing, hydrogel-**polymer**, ionically conductive, for electrochem. and electrolytic cells)

IT Urethane **polymers**, uses and miscellaneous
RL: USES (Uses)
(membranes containing hydrogel and, ionically conductive, for electrochem. and electrolytic cells)

IT Coupling agents
(membranes containing, hydrogel-**polymer**, ionically conductive, for electrochem. and electrolytic cells)

IT Gelatins, uses and miscellaneous
RL: USES (Uses)
(membranes of **polymers** and silica-containing, ionically conductive, for electrochem. and electrolytic cells)

IT Electric resistance
(of hydrogel-**polymer** matrix composite membranes)

IT Electrodes
(**battery**, encapsulated with hydrogel-**polymer** matrix composite)

IT Carbon fibers, uses and miscellaneous
RL: USES (Uses)
(graphite, membranes containing, hydrogel-**polymer**, ionically

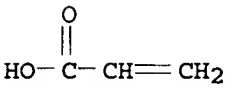
conductive, for electrochem. and electrolytic cells, Fortafil 3)
IT Gels
(hydro-, membranes containing **polymer** and, ionically conductive, for electrochem. and electrolytic cells)
IT **Batteries**, secondary
(separators, hydrogel-**polymer** matrix)
IT 7440-66-6, Zinc, uses and miscellaneous
RL: USES (Uses)
(anodes, encapsulated with hydrogel-**polymer** matrix composite, for **batteries**)
IT 7440-44-0 7782-42-5
RL: USES (Uses)
(carbon fibers, graphite, membranes containing, hydrogel-**polymer**, ionically conductive, for electrochem. and electrolytic cells, Fortafil 3)
IT 60676-86-0
RL: USES (Uses)
(catholyte, containing carbon, in electrochem. and electrolytic cells containing ionically conductive hydrogel-**polymer** membrane separators)
IT **9005-53-2**, **Lignin**, uses and miscellaneous 103850-22-2, LICA 12
RL: USES (Uses)
(coupling agent, membranes containing, hydrogel-**polymer**, ionically conductive, for electrochem. and electrolytic cells)
IT 7440-32-6D, Titanium, neoalkoxy complexes
RL: USES (Uses)
(coupling agents, membranes containing, hydrogel-**polymer**, ionically conductive, for electrochem. and electrolytic cells, LICA 12)
IT 11113-88-5, Silver oxide
RL: USES (Uses)
(electrodes, encapsulated with hydrogel-**polymer** matrix composite, for **batteries**)
IT 9002-85-1, Poly(vinylidene chloride) 9002-86-2, Poly(vinyl chloride) 9003-07-0, Polypropylene 9003-35-4, Formaldehyde-phenol **polymer** 24937-79-9, Poly(vinylidene fluoride) 120993-93-3, RAP 184
RL: USES (Uses)
(membranes containing hydrogel and, ionically conductive, for electrochem. and electrolytic cells)
IT 9000-69-5, Pectin **9003-01-4**, Poly(**acrylic** acid) 9003-05-8 9004-34-6, Cellulose, uses and miscellaneous 9004-62-0, Hydroxyethyl cellulose 9005-25-8, Starch, uses and miscellaneous 25322-68-3 120993-97-7, SGP 147
RL: USES (Uses)
(membranes containing **polymer** and, ionically conductive, for electrochem. and electrolytic cells)
IT 9005-25-8D, Starch, derivs.
RL: USES (Uses)
(membranes containing **polymer** and, ionically conductive, for electrochem. and electrolytic cells, SGP 147)
IT 7440-44-0, Carbon, uses and miscellaneous
RL: USES (Uses)
(membranes containing powdered, hydrogel-**polymer**, ionically conductive, for electrochem. and electrolytic cells)
IT **8061-51-6**, Lignosol FTA **8062-15-5D**, Lignosulfonic acid, salts 24937-78-8D, maleated 107666-69-3, Plexar 100
RL: USES (Uses)
(membranes containing, hydrogel-**polymer**, ionically conductive, for electrochem. and electrolytic cells)
IT **9005-53-2**, **Lignin**, uses and miscellaneous

RL: USES (Uses)
(coupling agent, membranes containing, hydrogel-**polymer**, ionically conductive, for electrochem. and electrolytic cells)
RN 9005-53-2 HCAPLUS
CN Lignin (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **9003-01-4**, Poly(**acrylic** acid)
RL: USES (Uses)
(membranes containing **polymer** and, ionically conductive, for electrochem. and electrolytic cells)
RN 9003-01-4 HCAPLUS
CN 2-Propenoic acid, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-10-7
CMF C3 H4 O2



IT **8061-51-6**, Lignosol FTA **8062-15-5D**, Lignosulfonic acid, salts
RL: USES (Uses)
(membranes containing, hydrogel-**polymer**, ionically conductive, for electrochem. and electrolytic cells)
RN 8061-51-6 HCAPLUS
CN Lignosulfonic acid, sodium salt (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 8062-15-5 HCAPLUS
CN Lignosulfonic acid (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L19 ANSWER 17 OF 17 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1976:580107 HCAPLUS
DN 85:180107
TI Filling tubular plates for lead storage **batteries**
IN Lahme, Norbert; Mund, Ingo
PA Accumulatorenwerk Hoppecke Carl Zoellner und Sohn, Fed. Rep. Ger.
SO Ger. Offen., 8 pp. Addn. to Ger. Offen. 2,419,107.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 2460399	A1	19760624	DE 1974-2460399	19741220
	DE 2460399	C3	19810619		
	AT 7502354	A	19770815	AT 1975-2354	19750327
	CH 589943	A	19770729	CH 1975-4180	19750402
	ES 436568	A1	19770101	ES 1975-436568	19750414
	FR 2268365	A1	19751114	FR 1975-11879	19750416
	SE 7504486	A	19751022	SE 1975-4486	19750418
	JP 50144048	A2	19751119	JP 1975-46991	19750419

PRAI DE 1974-2419107 A 19740420
DE 1974-2460399 A 19741220

AB Prior to pressure filling of tubular electrodes from polyester fleece, their pores are plugged by a lamination coating of CM-cellulose [**9004-32-4**] or poly(vinyl alc.) [**9002-89-5**]. The **electrolyte** permeability of walls of filled electrodes is restored after a short (15-30 min) immersion time in **H2SO4**.

IC H01M004-20

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

ST lead **battery** tubular electrode

IT Electrodes
(**battery**, lead-acid, filling of tubular)

IT Polyesters, uses and miscellaneous
RL: USES (Uses)
(electrodes from fleece of, lead-acid **battery** tubular, filling of CM-cellulose- or poly(vinyl alc.)-coated)

IT **9002-89-5 9004-32-4**
RL: USES (Uses)
(electrodes from polyester fleece coated with, filling of lead-acid **battery** tubular)

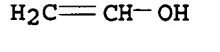
IT **9002-89-5 9004-32-4**
RL: USES (Uses)
(electrodes from polyester fleece coated with, filling of lead-acid **battery** tubular)

RN 9002-89-5 HCAPLUS

CN Ethenol, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 557-75-5
CMF C2 H4 O



RN 9004-32-4 HCAPLUS

CN Cellulose, carboxymethyl ether, sodium salt (8CI, 9CI) (CA INDEX NAME)

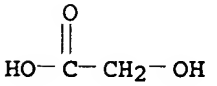
CM 1

CRN 9004-34-6
CMF Unspecified
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 79-14-1
CMF C2 H4 O3



=>